

REMARKS

Claims 1 to 18 are pending and being considered in the present application.

It is respectfully submitted that all of the presently pending claims are allowable, and reconsideration of the present application is respectfully requested.

Applicants note with appreciation the indication that the previous rejections under 35 U.S.C. §§ 112 and 102 have been withdrawn.

With respect to the objection to the Specification for the alleged informalities on page 5, line 27, the Office Action does not explain, nor is it apparent, why the quoted portion of the Specification "appears to be incorrect." Further, when a number exceeds one value, it also equals a following value. Thus, exceeding a value can be expressed as either equaling a value or exceeding a value.

Withdrawal of the objection to the Specification is therefore respectfully requested.

With respect to the objection to claim 8 as to the term "quantity," while Applicants do not agree with the merits of the objection, to facilitate matters, Applicants have rewritten claim 8 to recite "number" instead of "quantity."

With respect to the objection to claim 8 as to the term "exceeds," the Examiner's attention is respectfully directed to Applicants' comments above with respect to the objection to the Specification. Applicants further note that there is no requirement that different independent claims use the same terms or include the identical subject matter.

With respect to the objection to claim 10, while Applicants do not agree with the merits of the objection, to facilitate matters, Applicants have rewritten claim 10 to render moot the present objection.

With respect to the objection to claim 14, Applicants have rewritten claim 14 to render moot the present objection.

With respect to the objection to claim 18 as to the term "quantity," while Applicants do not agree with the merits of the objection, to facilitate matters, Applicants have rewritten claim 18 to recite "number" instead of "quantity."

With respect to the objection to claim 18 as to the term "last," Applicants have rewritten claim 18 to recite "last-selected" instead of "last."

With respect to the objection to claim 18 as to the term "reaches," other than to reference claim 8, the Office Action provides no basis as to why the term "appears to be

incorrect.” With respect to the reference to claim 18, there is no requirement that different independent claims use the same terms or include the identical subject matter.

Further, when a gain falls below a pre-defined value, it also reaches a different pre-defined value that is one less than the first pre-defined value. Thus, falling below a pre-defined value can be expressed as either reaching a pre-defined value or falling below a pre-defined value.

Accordingly, entry and approval of these amendments, and withdrawal of these claim objections, is respectfully requested.

Claims 13 to 17 were rejected under 35 U.S.C. § 112, ¶ 2, as assertedly being indefinite. Applicants have rewritten each of claims 13 to 17 to obviate the present rejection.

Entry and approval of these amendments, and withdrawal of these claim rejections, is respectfully requested.

Claims 8 and 18 were rejected under 35 U.S.C. § 112, ¶ 2, as assertedly omitting essential steps.

With respect to claim 8, the Office Action incorrectly asserts that it is required, in step (i), for steps (c) through (h) to be repeated. Step (i) calls for continuously repeating the steps (c) through (h) until one of two conditions is met. However, repetition of the repetition is not required. That is, claim 8, as presently written already provides for continuously performing steps (c) through (h) until the one of two conditions is met during performance of step (i). After performing step (h) in each loop, if the condition has not been met, the claim as presently written provides for performing steps (c) through (h) again as part of step (i).

With respect to claim 18, Applicants have rewritten the claim to obviate the present rejection.

Entry and approval of these amendments, and withdrawal of these claim rejections, is respectfully requested.

Claims 1 to 18 were rejected under 35 U.S.C. § 101 as assertedly being directed to non-statutory subject matter.

The Office Action contends that claims 1 to 11 lack a useful, concrete, and tangible result.

Claims 1 to 11 are directed to statutory subject matter. In particular, claims 1 to 11 are directed to a method, which is squarely within one of the four categories set forth in 35 U.S.C. § 101 -- *i.e.*, a process -- and are therefore per se statutory subject matter.

Claims 1 to 11 do not fall within one of the judicial exceptions to statutory subject matter, *i.e.*, laws of nature, natural phenomena, and abstract ideas. In this regard, claims 1 to 7 include features for determining gains for candidate features, ranking the candidate features in an ordered list, selecting a top-ranked feature, and adjusting a model using the selected feature, and claims 8 to 11 include features for computing gains of candidate features, ordering the candidate features in an ordered list, selecting a top-ranked feature, and adjusting a model using the selected feature. These operations are neither laws of nature nor naturally occurring phenomena. Furthermore, the judicial exception of an abstract idea refers to steps which consist of merely a fundamental truth, a scientific truth represented by a mathematical algorithm, a cause, or a motive, or which otherwise consist of manifestations of laws of nature that are part of the storehouse of knowledge that is free to all men and reserved exclusively to none. *See, e.g.*, M.P.E.P. § 2106(IV)(C). That is, an abstract idea refers to steps or elements that inherently exist in the world.

Accordingly, the characterization of claims 1 to 11, which are directed to a method of select features for maximum entropy modeling and recite steps performed to carry out the feature selection, as a mere abstract idea is not sustainable and does not reflect the intention of the judicial exception of an abstract idea. Therefore, further inquiry into whether the claims provide a useful, concrete, and tangible result is unnecessary.

Notwithstanding the above, and while Applicants do not agree with the merits of the rejection, to facilitate matters, each of claims 1 and 8 has been rewritten herein without prejudice to obviate the present rejections. In this regard, it is noted that “[w]hile abstract ideas, natural phenomena, and laws of nature are not eligible for patenting, methods . . . employing abstract ideas, natural phenomena, and laws of nature to perform a real-world function may well be.” M.P.E.P. § 2106(IV)(C) (emphasis added). A claimed invention is directed to a practical application of a 35 U.S.C. § 101 judicial exception when it produces a useful, concrete, and tangible result. *See id.* For an invention to be useful, it must satisfy the utility requirement of section 101. *See id.* For an invention to be tangible, it must set forth a practical application of the invention to produce a real-world result. *See id.* For an invention to be concrete, it must be substantially repeatable. *See id.*

Even if claims 1 to 11 are considered to represent the judicial exception of an abstract idea (which Applicants do not concede), claims 1 to 11 are to a repeatable method having the practical real world application of “select[ing] features for maximum entropy modeling,” where an adjusted model is saved. The utility of such a method is discussed in

the present application and is widely recognized. For example, such a stored maximum entropy model may be useful for “language modeling and natural language processing to predict linguistic behavior.” See specification, page 1, lines 7 to 8. Accordingly, claims 1 to 7 provide a useful, tangible, and concrete result.

The Office Action contends that claims 12 to 17 lack a useful, concrete, and tangible result.

Claims 12 to 17 are directed to statutory subject matter. In particular, claims 12 to 17 are directed to a hardware-implemented arrangement system, which is squarely within one of the four categories set forth in 35 U.S.C. § 101 -- *i.e.*, a machine or manufacture – and are therefore per se statutory subject matter.

Claims 12 to 17 do not fall within one of the judicial exceptions to statutory subject matter, *i.e.*, laws of nature, natural phenomena, and abstract ideas. In this regard, a machine or manufacture cannot be considered any of laws of nature, natural phenomena, and abstract ideas. Accordingly, further inquiry into whether the claims provide a useful, concrete, and tangible result as required by 35 U.S.C. § 101 is unnecessary.

The Office Action contends that claim 18 lacks a useful, concrete, and tangible result, but it unreasonably interprets the storage medium of claim 18 to read on a sheet of paper. Claim 18 provides a storage medium having a set of instructions executable by a processor to perform a number of step. Instructions in written form on a paper are not executable by a processor. At most, such written text can be recognized using optical character recognition for conversion into an executable form. The converted executable form resides in a hardware-implemented storage medium; not on the sheet of paper. Furthermore, one skilled in the art would interpret a “storage medium” in the context of processors as a memory medium. Notwithstanding the above, to facilitate matters, Applicants have rewritten claim 18 for clarification to recite a “hardware-implemented storage medium.”

Accordingly, claim 18 is directed to statutory subject matter. In particular, a hardware-implemented storage medium, is squarely within one of the four categories set forth in 35 U.S.C. § 101 -- *i.e.*, a machine or manufacture.

Claim 18 does not fall within one of the judicial exceptions to statutory subject matter, *i.e.*, laws of nature, natural phenomena, and abstract ideas. In this regard, a machine or manufacture cannot be considered any of laws of nature, natural phenomena, and abstract ideas. Accordingly, further inquiry into whether the claim provides a useful, concrete, and tangible result as required by 35 U.S.C. § 101 is unnecessary.

Withdrawal of the rejections under 35 U.S.C. § 101 is therefore respectfully requested.

Accordingly, all of pending claims 1 to 18 are allowable.

Conclusion

In view of the foregoing, it is respectfully submitted that all of claims 1 to 18 are allowable. It is therefore respectfully requested that the objections and rejections be withdrawn. Prompt reconsideration and allowance of the present application are therefore respectfully requested.

Respectfully submitted,

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By [Signature]
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